

## **ABSTRACT**

A pipette assembly for automatic pipetting machines including a stepped mandrel and tip for providing a minimum contact seal between the pipette tip and mandrel. The mandrel includes a first cylindrical portion with a first exterior diameter and a second cylindrical portion with a second exterior diameter. Raised bands on the first and second cylindrical portions contact the interior wall of the pipette tip to form seals. Because only a portion of the mandrel, specifically the seal portions, contacts the pipette tip, lower forces are required to insert the tip onto the mandrel.